

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A mobile communication system comprising:

a plurality of access routers;

a plurality of relay routers, at least one of the plurality of relay routers multicasts the data being transmitted from the correspondent terminal to the mobile terminal, and one of the at least one of the plurality of relay routers is present on each of the one or more paths for delivery of data from a correspondent terminal to a mobile terminal via one or more of the plurality of access routers used in a multipath handover state by the mobile terminal; a plurality of access routers[[,]] and

a server apparatus, the server apparatus dynamically switching which of the at least one relay routers multicasts the data being transmitted from the correspondent terminal to the mobile terminal, based on the movement of the mobile terminal or the correspondent terminal [[,]]

~~the mobile communication system being constructed in a configuration wherein a router existing on paths for delivery of data from a correspondent terminal to a mobile terminal via each of access routers used in a multipath handover state by the mobile terminal, multicasts the data,~~

~~wherein the server apparatus performs such a control as to dynamically switch one router to multicast the data, to another in conjunction with movement of the mobile terminal or the correspondent terminal.~~

2. (Currently Amended) The mobile communication system according to Claim 1, wherein the server apparatus comprises:

acquiring means for acquiring, from each of the plurality of access ~~routers~~ ~~router~~, path information between a router connected to the correspondent terminal and each of the plurality of access routers used in the multipath handover state by the mobile terminal;

selecting means for selecting the at least one of the plurality of relay routers to multicast the data transmitted from the correspondent terminal to the mobile terminal, based on making a comparison of the path information acquired by the acquiring means ~~and selecting a router to multicast the data, based on a result of the comparison~~; and

instructing means for instructing the at least one of the plurality of relay routers ~~router~~ selected by the selecting means, to multicast the data.

3. (Currently Amended) The mobile communication system according to Claim 1, wherein a router connected to the correspondent terminal transmits path information to each of the access routers used in the multipath handover state by the mobile terminal, and

wherein each path information is routed through a shortest path from said router as a start point to each of the access routers as an end point, ~~[[a]]~~ every router passed by each path information additionally records identification information of said respective router in each path information, and each of the access routers refers to the path information received, so as to acquire relay routers on the shortest path from the start point to the end point, and a passing order thereof on the shortest path.

4. (Currently Amended) The mobile communication system according to Claim 2, wherein the selecting means of the server apparatus is configured to:

make sequential comparisons of the path information acquired by the acquiring means, hop by hop from a start point;

[[if]] ~~about~~ when, with a given [[a]] hop as a target for the comparisons, relay routers passed in all the paths are identical, perform a comparison about a next hop;

select as [[a]] the one of the at least one of the plurality of relay routers ~~router~~ to multicast the data transmitted from the correspondent terminal to the mobile terminal, a router in one hop before a path against which there exists no other path passing an identical router; and

thereafter eliminate said path, then repeat the comparison and selecting processes before there remains one or less path as a comparison target or before a comparison is completed for a hop of an end point, and thereby select another router as another of the at least one of the plurality of routers to multicast the data.

5. (Currently Amended) The mobile communication system according to Claim 2, wherein the instructing means of the server apparatus is configured to:

instruct ~~the~~ at least one other router selected as the at least one of the plurality of relay routers ~~router~~ newly selected by the selecting means, to start multicasting the data; and

instruct [[a]] at least one router previously selected as the at least one of the plurality of relay routers ~~removed from the router~~ to multicast the data, in conjunction with the selection of the at least one other router, to cancel multicast of the data.

6. (Original) The mobile communication system according to Claim 2, wherein at an opportunity of a change in the access routers used in the multipath handover state by the mobile terminal, the server apparatus sequentially executes the acquiring process, the selecting process, and the instructing process.

7. (Original) The mobile communication system according to Claim 3, wherein one of the access routers used in the multipath handover state by the mobile terminal sends a path information request to the correspondent terminal under communication with the mobile terminal, and

wherein the router connected to the correspondent terminal terminates the path information request and at this opportunity, said router sends path information to each of the access routers used in the multipath handover state by the mobile terminal.

8. (Currently Amended) The mobile communication system according to Claim 7, wherein each access router receiving the path information additionally records identification information of the access router itself in the path information and sends the path information to the server apparatus.

9. (Currently Amended) The mobile communication system according to Claim 5, wherein ~~[[said]]~~ the at least one other router, newly selected by the selecting means as the at least one of the plurality of relay routers to multicast the data, receives a multicast start request from the server apparatus, retains information included in the multicast start request, and multicasts data addressed to the mobile terminal, and

wherein the at least one router previously selected as the at least one of the plurality of relay routers ~~removed from the router~~ to multicast the data, in conjunction with the selection of the at least one other router as the newly selected at least one of the plurality of relay routers to multicast the data, receives a multicast stop request from the server apparatus and stops multicasting the data.

10. (Original) The mobile communication system according to Claim 9, wherein, when receiving the data addressed to the mobile terminal, the router newly selected by the selecting means makes copies of the data by the number of routers as multicast destinations and transmits the data copies to the respective multicast destinations.

11. (Original) The mobile communication system according to Claim 7, wherein said path information request contains identification information of a sender and a recipient of the path information request and also contains identification information of the mobile terminal and identification information of the access routers to be designated as destinations of the path information.

12. (Original) The mobile communication system according to Claim 7, wherein the path information contains identification information of a sender and a recipient of the path information and also contains identification information of the mobile terminal, identification information of the correspondent terminal, and identification information of the router as a start point of a path indicated by the path information.

13. (Original) The mobile communication system according to Claim 9, wherein the multicast start request contains identification information of a sender and a recipient of the multicast start request and also contains identification information of the mobile terminal and identification information of routers as multicast destinations, and

wherein the multicast stop request contains identification information of a sender and a recipient of the multicast stop request and also contains identification information of the mobile terminal.

14. (Currently Amended) A server apparatus connected to a plurality of relay routers and to a plurality of access routers, the server apparatus being configured to instruct ~~[[a]]~~ at least one of the plurality of relay routers ~~router existing on paths for delivery of data from a correspondent terminal to a mobile terminal via each of access routers used in a multipath handover state by the mobile terminal,~~ to multicast the data, one of the at least one of the plurality of relay routers existing on each of one or more paths for delivery of data from a correspondent terminal to a mobile terminal via each of one or more of the plurality of access routers used in a multipath handover state by the mobile terminal, said server apparatus comprising:

acquiring means for acquiring from each access router, path information between a router connected to the correspondent terminal and each of the access routers used in the multipath handover state by the mobile terminal, in conjunction with movement of the mobile terminal or the correspondent terminal;

selecting means for selecting the at least one of the plurality of relay routers ~~making a comparison of the path information acquired by the acquiring means and selecting a router to~~ multicast the data transmitted from the correspondent terminal to the mobile terminal, based on a result of ~~[[the]]~~ a comparison of the path information acquired by the acquiring means; and

instructing means for instructing ~~the router selected by the selecting means~~ the at least one of the plurality of relay routers, selected by the selecting means, to multicast the data transmitted from the correspondent terminal to the mobile terminal.

15. (Currently Amended) A data transmission method in a mobile communication system comprising a plurality of relay routers, a plurality of access routers, and a server apparatus, ~~the mobile communication system being constructed in a configuration wherein a~~

~~router existing on paths for delivery of data from a correspondent terminal to a mobile terminal via each of access routers used in a multipath handover state by the mobile terminal, multicasts the data,~~ said data transmission method comprising:

at least one of the plurality of relay routers multicasting the data transmitted from the correspondent terminal to the mobile terminal, one of the at least one of the plurality of relay routers exists on each of one or more paths for delivery of data from a correspondent terminal to a mobile terminal via one or more access routers used in a multipath handover state by the mobile terminal; and

~~a control step wherein the server apparatus dynamically~~ switching one or more of the at least one of the plurality of relay routers that multicasts the data being transmitted from the correspondent terminal to the mobile terminal, based on the movement of the mobile terminal or the correspondent terminal ~~switches one router to multicast the data, to another in conjunction with movement of the mobile terminal or the correspondent terminal.~~

16. (Currently Amended) The mobile communication system according to Claim 1, wherein the server apparatus comprises:

acquiring means for acquiring path information between a router connected to the correspondent terminal and each of the access routers used in the multipath handover state by the mobile terminal, based on information in a link state database of Open Shortest Path First (OSPF) ~~[[OSPF]]~~, which was acquired from the router or the access router;

selecting means for selecting the at least one of the plurality of relay routers ~~making a comparison of the path information acquired by the acquiring means and selecting a router to~~ multicast the data, based on a result of ~~[[the]]~~ a comparison of the path information acquired by the acquiring means; and

instructing means for instructing the at least one of the plurality of relay routers,
~~router~~ selected by the selecting means, to multicast the data.

17. (Original) The mobile communication system according to Claim 1, wherein
acquiring means of the server apparatus is configured to:

acquire from at least one router belonging to each management area of OSPF used by
a network, information in a link state database made in the management area to which said
router belongs;

change all cost values between routers or access routers, recorded in the link state
database, to an identical numeral larger than 0 according to need;

receive from a router connected to the correspondent terminal, a start point search
response indicating that said router is a start point of path information;

activate a shortest path algorithm with the router indicated by the start point search
response, as a start point, and thereby generate a shortest hop tree with said router at a start
point; and

refer to the shortest hop tree to acquire as path information, routers on a shortest path
from the router as a start point to each access router as an end point, and a passing order
thereof.

18. (Original) The mobile communication system according to Claim 17, wherein
one of the access routers used in the multipath handover state by the mobile terminal sends a
start point search request to the correspondent terminal as a correspondent under
communication with the mobile terminal, and

wherein the router connected to the correspondent terminal terminates the start point search request thereat and at this opportunity, said router sends the start point search response in which identification information of the router is recorded, to the server apparatus.

19. (Original) The mobile communication system according to Claim 18, wherein the start point search request contains identification information of a sender and a recipient of the start point search request and also contains identification information of the mobile terminal.

20. (Original) The mobile communication system according to Claim 17, wherein the start point search response contains identification information of a sender and a recipient of the start point search response and also contains identification information of the mobile terminal, identification information of the correspondent terminal, and identification information of a router as a start point obtained by a search.

21. (Currently Amended) A server apparatus connected to a plurality of relay routers and to a plurality of access routers, the server apparatus being configured to instruct [[a]] at least one of the plurality of relay routers to multicast the data, one of the at least one of the plurality of relay routers ~~router~~ existing on each of one or more paths for delivery of data from a correspondent terminal to a mobile terminal via one or more of the plurality of ~~each of~~ access routers used in a multipath handover state by the mobile terminal, ~~to multicast the data,~~ said server apparatus comprising:

acquiring means for acquiring path information between a router connected to the correspondent terminal and each of the access routers used in the multipath handover state by the mobile terminal, based on information in a link state database of OSPF, which was

acquired from the router or the access router, in conjunction with movement of the mobile terminal or the correspondent terminal;

selecting means for selecting the at least one of the plurality of relay routers ~~making a comparison of the path information acquired by the acquiring means and selecting a router to~~ multicast the data transmitted from the correspondent terminal to the mobile terminal, based on a result of ~~[[the]]~~ comparison of the path information acquired by the acquiring means; and

instructing means for instructing the at least one of the plurality of relay routers, ~~router~~ selected by the selecting means, to multicast the data transmitted from the correspondent terminal to the mobile terminal.